

3a. AWARDING OFFICE:

| OFFICE  | OF                    |         | MODIF   |                        |   | 875 N.   | of Naval F<br>Randolph S<br>ton, VA 222     | Street, Sui         | ite 1425    |
|---|-----------------------|---------|---|------------------------|---|--|---|---------------------|-------------|
| L'  | VI                    |         | 1. INSTRUMENT TYPE:<br>Grant Award            |                        |   | 3b. CFDA:<br>12.300  |   |                     |             |
| AVAL RE   | SEARCI                |         | 2. AUTHORITY:<br>10 USC 2358 and 3            | R1 1190 6              | 304 as amondod  | 3c. DUNS NUI<br>052184   |   |                     |             |
| 4. AWARD NO.:   |                       |         | 5. MODIFICATION NO.:                          | 6. MOD                 | OIFICATION TYPE:  | 7. PR NO.:   | <u> </u>                                    |                     |             |
| N00014-18-1-250   |                       |         | 9. RECIPIENT PROPOSA                          | IF NO:                 | 10. PROPOSAL DAT  | 472000   | 4862<br>11. ACTIVITY T                      | VDE: 12 DB          | OGRAM TYPE: |
| GRANT12513761   |                       |         |   |                        | 11012017  |  | R&D   | MU                  | JRI         |
| 13. ISSUED TO 13b. 13a. ADDRESS:  | . <b>CAGE</b> : 97668 |         | NEFT NUMBER:<br>/A                            |                        | TTANCE ADDRESS (<br>e as Block # 1                        |  | FROM BLOCK                                  | 13):                |             |
| CARNEGIE MELLOI<br>5000 FORBES AVI<br>PITTSBURGH PA<br>UNITED STATES (        | E<br>15213-381        | 5       |   |                        |   |  |   |                     |             |
| 13d. BUSINESS OFFICE (<br>Judy Coyle  | CONTACT:              |         |   |                        |   |  |   |                     |             |
| 13e. TELEPHONE NUMBE<br>412-268-5597  |                       |         | RESS:<br>rew.cmu.edu                          |                        |   |  |   |                     |             |
|   |                       |         | OF PROJECT AND/OR PROF<br>Inderstanding of Co |                        |   | ns to Ensu   | re System :                                 | Success             |             |
| 16. FUNDING   | ACT                   | IVITY/A | GENCY SHARE REC                               | IPIENT SH              | HARE TOTAL  | -  | 17. CURRENT F                               | UNDING PERI         | OD          |
| PREVIOUSLY OBLIGATE   | D:                    |         |   | \$1,500,000.00         |   |  | N/A   | THROUGH             | N/A         |
| OBLIGATED BY THIS ACT   | TION:                 |         |   |                        | \$1,50  | 0,000.00   |   |                     |             |
| TOTAL OBLIGATED ON A  | WARD:                 |         |   |                        |   |  | 18. PERIOD OF                               | PERFORMAN           | CE          |
| FUTURE FUNDING:   |                       |         |   |                        | \$1,50  | 0,000.00   | 05/01/2018                                  | 3 THROUGH           | 05/31/2021  |
| GRANT TOTAL:  |                       |         |   |                        | \$4,50  | 0,000.00   |   |                     |             |
| 19. ACCOUNTING AND A<br>See Attached F:                                       |                       |         | ting Data Sheet(s)                            |                        |   |  |   |                     |             |
| 20a. PRINCIPAL INVESTI<br>TECHNICAL REPRESENT                                 | TATIVE:               | IENT    |   | 21. TECH<br>21a. NAM   | NICAL REPRESENTA<br>E: JASON STAC                         |  |   | 21b. CODE:<br>321   |             |
| Aaron Steinfeld   | a                     |         |   | 87                     | RESS:<br>OCEAN SENSING<br>5 N. Randolph<br>ington VA 2220 | Street   | APPS DIV                                    |                     |             |
| 20b. TELEPHONE NUMBER: 20c. EMAIL ADDRESS: steinfeld@cmu.edu                  |                       |         |   | 21d. TELEPHONE NUMBER: |   |  | 21e. EMAIL ADDRESS:<br>JASON.STACK@NAVY.MIL |                     |             |
| 22. POC FOR THIS ACTION 22a. NAME: VANESSA                                    |                       |         | 22b. CODE:                                    | ONR                    | INISTRATIVE OFFIC<br>REG Office Ch                        | icago  |   | 23b. CODE:<br>N6288 | 30          |
| 22c.ADDRESS:<br>Office of Nava:<br>875 N. Randolph<br>Arlington VA 22         | h Street S            |         | 1425  | Ema<br>230             | ephone: (312) il:ONR_Chicago South Dearbor CAGO IL 60604- | @navy.mil<br>n   |   |                     |             |
| 22d. TELEPHONE NUMBE<br>703-696-4591  |                       |         | RESS:<br>EYMOUR@NAVY.MIL                      |                        |   |  |   |                     |             |
| 24. SUBMIT PAYMENT RE   | -                     |         | 5a. PAYING OFFICE                             |                        | Е: но0337   | 26a. PATENT  |   | 26b. CODE:          | N00014      |
| Same as block 23a DFAS-CO/NORTH ENTITH HQ0337 PO Box 182266 COLUMBUS OH 43128 |                       |         |   | TLEMENT                | OPERATIONS  | Office of Naval Research ATTN: ONR Office of Counsel Intellectual Property Section One Liberty Center 875 North Randolph Street, Suite 1425 Arlington, VA 22203-1995 |   |                     |             |

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| AWARD NO.  | A 1A                | /ARD/MODII                     | EICATION                   | MODIFICATION NO.   |                               |
|--|---------------------|--------------------------------|----------------------------|--|-------------------------------|
| N00014-18-1-2503   | AV                  | AKD/WODII                      | FICATION                   | P00002   |                               |
| 27. SPECIAL INSTRUCTIONS:  |                     |                                |                            | J  |                               |
| See Special Requirements on  | Page 5              |                                |                            |  |                               |
|  |                     |                                |                            |  |                               |
|  |                     |                                |                            |  |                               |
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|  |                     |                                |                            |  |                               |
|  |                     |                                |                            |  |                               |
| 28. DELEGATIONS: The administration dution make their full text available. Please direct quality |                     |                                | ,                          | block 23a). Upon request the awardir<br>Contracts-Grants/Regional-Co | , ,                           |
|  |                     | поср // .                      |                            |  |                               |
| This award provides full de  | legation to         | the administrat                | ive office in E            | lock 22 of the grant Fr  | ull delegation                |
| includes the functions desc  | ribed in th         | ne DoDGARs at 32               | CFR 22.715 and             |  |                               |
| functions related to paymen  | ts describe         | ed in 32 CFR 22.8              | 310.                       |  |                               |
|  |                     |                                |                            |  |                               |
|  |                     |                                |                            |  |                               |
|  |                     |                                |                            |  |                               |
|  |                     |                                |                            |  |                               |
| 29. TERMS AND CONDITIONS: The following<br>request the awarding office contact named in          |                     |                                |                            |  | were given in full text. Upon |
| request the awarding office contact flamed in  | I DIOCK 22 WIII III | ake trieli iuli text avallable | , or they can be lound a   | it the specified OIL.  |                               |
| DOCUMENT   |                     |                                | URL                        |  |                               |
|  |                     |                                |                            |  |                               |
| The following documents may http://www.onr.navy.mil/Con  |                     |                                | al/grants-propo            | sal/grants_terms_condit  | iong agny                     |
| DOD RESEARCH AND DEVELOPMEN  |                     |                                |                            |  | IOIIS.ASPA                    |
| UAWA AWARD A (SEP 2017)  | TEDAT TEDMO         | AND CONDITIONS A               | ND OND DDOCDAMN            | IATT O   |                               |
| ADDENDUM TO THE DOD R&D GEN<br>SPECIAL TERMS AND CONDITION                                       |                     |                                |                            |  |                               |
|  |                     |                                |                            |  |                               |
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|  |                     |                                |                            |  |                               |
|  |                     |                                |                            |  |                               |
| 30. OPTIONS OPTION NO.   | AMOUN'              | Т                              | F                          | PERIOD   |                               |
| (1) Option 1   | \$2,977             | ,655.00                        | C                          | 06/01/2021 to 05/31/2023   |                               |
| (2)  |                     |                                |                            |  |                               |
| (3)<br>(4)   |                     |                                |                            |  |                               |
| (4)  |                     |                                |                            |  |                               |
| 31. REPORTS: The reporting requirements (  | under this award    | are specified in the article   | es of part 5 (Financial, F | Programmatic, and Property Reportin                                  | g) to the General Terms and   |
| Conditions and in any additional language fo   | r Part 5 in an ON   | IR Addendum to the Gene        | eral Terms and Condition   | ons specified in Block 29.   |                               |
|  |                     |                                |                            |  |                               |
|  |                     |                                |                            |  |                               |
|  |                     |                                |                            |  |                               |
|  |                     |                                |                            | 074770 05 44450404   |                               |
| 32. FOR THE RECIPIENT  |                     |                                | 33. FOR THE UNITED         | STATES OF AMERICA  |                               |
|  |                     |                                |                            |  |                               |
| 220 SIGNATURE OF DEBOOM AUTHORIS   | ED TO SIGN          |                                | 220 81011471175            | AMARDING OFFICER   |                               |
| 32a. SIGNATURE OF PERSON AUTHORIZ  | ED TO SIGN          |                                |                            | AWARDING OFFICER   |                               |
|  |                     |                                |                            | ned by VERONICA LACEY 12<br>2.14 16:43:06 EST                        | .31655901                     |
|  |                     |                                | Datta. 2010.1.             |  |                               |
| 32b. NAME AND TITLE OF SIGNER  |                     | 32c. DATE SIGNED               | 33b. NAME AND TITL         | E OF AWARD OFFICER   | 33c. DATE SIGNED              |
|  |                     |                                | VERONICA LACE              | Y  | 12/14/2018                    |

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## FINANCIAL ACCOUNTING DATA SHEET - NAVY

| 1. CONTRACT NUMBER (CRITICAL) N00014-18-1-2503  2. SPIIN (CRITICAL) |            | 3. MOD (CRITICAL)<br>P00002 |               |   | 4. PR NUMBER<br>4720004862 |           |          |                |                         |           |              |         |               |                      |                      |
|---|------------|-----------------------------|---------------|---|----------------------------|-----------|----------|----------------|-------------------------|-----------|--------------|---------|---------------|----------------------|----------------------|
| CLIN/SLIN 6. LINE OF ACCOUNTING 7.                                  |            |                             |               |   |                            |           |          | NAVY           |                         |           |              |         |               |                      |                      |
|   | A.<br>ACRN | B.<br>APPROPRIATION         | C.<br>SUBHEAD | D.<br>OBJ   | E.<br>PARM                 | F.<br>RFM | G.<br>SA | H.<br>AAA      | I.<br>IT                | J.<br>PAA | K.           | COST CO | DE            | AMOUNT<br>(CRITICAL) | INTERNAL USE<br>ONLY |
|   | (CRITICAL) | (CRITICAL)                  | (CRITICAL)    | CLA   |                            |           |          | (CRITICAL)     |                         |           | PROJ<br>UNIT | мсс     | PDLI &<br>SUF | (0.1                 | REF DOC/ACRN         |
|   | AB         | 1791319                     | W1HZ          | 410   | 00                         | 014       | 0        | 050120         | 2D                      | 000000    | 000028       | 399     | 829           | \$1,500,000.00       |                      |
| PAGE TOTAL  |            |                             |               |   |                            |           |          |                | \$1,500,000.00          |           |              |         |               |                      |                      |
|   |            |                             |               |   |                            |           |          | \$1,500,000.00 |                         |           |              |         |               |                      |                      |
| PREPARED/AUTHORIZED BY:  DATE:                                      |            |                             |               | COMPTROLLER APPROVAL: FOR FISCAL DATA AND SIGNATURE BY for COMPTROLLER, DATE: |                            |           |          |                | , ONR CONTRACT REVIEWED |           |              |         |               |                      |                      |

## FINANCIAL ACCOUNTING DATA SHEET - NON-NAVY DoD ACTIVITIES

|                  |                          | 3. MOD (CRITICAL) | 4. PR NUMBER |                                |             |                            |   |
|------------------|--------------------------|-------------------|--------------|--------------------------------|-------------|----------------------------|---|
| N00014-18-1-2503 |                          |                   | P00002       | 4720004862                     |             |                            |   |
| 5.<br>CLIN/SLIN  | 6.<br>ACRN<br>(CRITICAL) | 7.                | A            | ACCOUNTING CITATION            |             | 8.<br>AMOUNT<br>(CRITICAL) | NAVY INTERNAL<br>USE ONLY<br>REF DOC/ACRN |
|                  |                          |                   |              |                                |             |                            |   |
|                  |                          |                   |              |                                | PAGE TOTAL  |                            |   |
| PREPARED/        | ALITHORIZED              | NRV-              |              | COMPTROLLER APPROVAL:          | GRAND TOTAL |                            |   |
| DATE:            | NO I HORIZED             | , 61.             |              | FOR FISCAL DATA AND S BY DATE: | SIGNATURE   | for COMPTROLLER, ONR CO    | ONTRACT REVIEWED                          |

| AWARD NO.<br>N00014-18-1-2503 | SPECIAL REQUIREMENTS | MODIFICATION NO.<br>P00002 |  |
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